## Hazardous Materials Carried by Passengers and Crewmembers

In general, US Department of Transportation (DOT) regulations prohibit passengers and crewmembers from carrying hazardous materials (dangerous goods) aboard commercial aircraft. The table below lists the exceptions that allow passengers and crewmembers to carry a limited amount of personal-use hazardous materials in carry-on and/or checked baggage. Though allowable by DOT regulations (see 49 CFR, section 175.10), some of the items listed here may, at times, be prohibited in the aircraft cabin by Transportation Security Administration (TSA) rules. Individual airlines and other nations may also have more restrictive rules on what passengers can carry aboard the aircraft.

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Medicinal and toilet articles (including flammable and nonflammable aerosols)	☑ Toilet or medicinal articles that are hazardous materials such as rubbing alcohol, flammable perfume and colognes, nail polish and remover, and aerosols (hairspray, shaving cream, etc.).	Hazardous materials that are not medicinal/toilet articles or described in the other exceptions, such as: spray paints, aerosol laundry starch, insecticides, drain cleaners, camping fuel, etc.	(1)(i) Non-radioactive toilet articles for personal use (including aerosols) carried in carry-on and checked baggage. Release devices on aerosols must be protected by a cap or other suitable means to prevent inadvertent release.  (ii) Other aerosols in Div. 2.2 (nonflammable gas) with no subsidiary risk carried in checked baggage only. Release devices on aerosols must be protected by a cap or other suitable means to prevent inadvertent release; and  (iii) The aggregate quantity of these hazardous materials carried by each person may not exceed 2 kg (70 ounces) by mass or 2 L (68 fluid ounces) by volume and the capacity of each container may not exceed 0.5 kg (18 ounces) by mass or 500 ml (17 fluid ounces) by volume.
Additional nonflammable aerosols that are not medicinal or toilet articles (Nonflammable aerosols are rare.)	✓ Non-toiletry aerosols that contain nonflammable & non-toxic gas –in checked baggage only.	Aerosols without caps or other protective features around the release device/button are also not allowed.	

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Matches and Lighters	☑ One book of safety matches (book matches) may be carried in the aircraft cabin.	➤ Torch lighters, utility lighters.	(2) One packet of safety matches or a lighter intended for use by an individual when carried on one's person or in carry-on baggage only. Lighter fuel, lighter refills, and lighters containing unabsorbed liquid fuel (other than liquefied gas) are not permitted on one's person or in carry-on or checked baggage.
	☑ One lighter (gas or absorbed liquid) may be carried in the aircraft cabin.	Strike anywhere matches.  STRIKE ANYWHERE  MATCHES  2012ARGE ETCHERMATCHES	Note: This subparagraph was amended in the Federal Register on Dec. 29, 2006 (71 FR 78634). The amended text is shown above.
		Lighter refills, lighter fluid.	
Radioactive and battery-powered devices in the body	☑ Pacemakers or similar battery-powered devices and radiopharmaceuticals contained in the body.		(3) Implanted medical devices in humans or animals that contain hazardous materials, such as a heart pacemaker containing Class 7 (radioactive) material or lithium batteries; and radiopharmaceuticals that have been injected or ingested.

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Alcoholic beverages	Up to 5 liters of alcoholic beverages with an alcohol content of more than 24% but not more than 70% in unopened retail packages.  Note: Alcoholic beverages containing 24% or less alcohol by volume (beer, wine, etc.,) are not subject to the DOT hazardous materials regulations.	☑ Alcoholic beverages with more than 70% alcohol by volume (more than 140 Proof) including 95% grain alcohol and 151-proof rum.  ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑ ☑	(4) Alcoholic beverages containing:  (i) Not more than 24% alcohol by volume; or  (ii) More than 24% and not more than 70% alcohol by volume when in unopened retail packagings not exceeding 5 liters (1.3 gallons) carried in carry-on or checked baggage, with a total net quantity per person of 5 liters (1.3) gallons for such beverages.
Duty free perfume and cologne	Flammable perfumes and colognes from the airport / airline duty free shops.		(5) Perfumes and colognes purchased through duty-free sales and carried on one's person or in carry-on baggage.

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Curling iron (cordless)	✓ A curling iron with a flammable gas cartridge installed.	Extra flammable gas cartridges.	(6) Hair curlers (curling irons) containing a hydrocarbon gas such as butane, no more than one per person, in carry-on or checked baggage. The safety cover must be securely fitted over the heating element. Gas refills for such curlers are not permitted in carry-on or checked baggage.
Small mercury thermometer	✓ Small personal mercury thermometer in a protective case.		(7) A small medical or clinical mercury thermometer for personal use, when carried in a protective case in carry-on or checked baggage.
Small arms ammunition	✓ Small arms ammunition (up to 19.1 mm for rifle and pistol cartridges, any size shotgun shells) for personal use, when securely boxed—in checked baggage only.	Loose ammunition     Loaded firearms	(8) Small arms ammunition for personal use carried by a crewmember or passenger in checked baggage only, if securely packed in boxes or other packagings specifically designed to carry small amounts of ammunition. Ammunition clips and magazines must also be securely boxed. This paragraph does not apply to persons traveling under the provisions of 49 CFR 1544.219.
Self-defense spray	✓ One small (4-ounce or less) self-defense spray <u>in checked baggage only</u> .  PEPPER SPRAY  Note: Usually forbidden even in checked baggage outside the U.S.		(9) One self-defense spray (see § 171.8 of this subchapter), not exceeding 118 mL (4 fluid ounces) by volume, that incorporates a positive means to prevent accidental discharge may be carried in checked baggage only.

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Dry ice	☑ Small amounts of dry ice in carry-on (2 kg.) or checked baggage (2.3 kg.) in a package that allows venting of carbon dioxide gas.	➤ Dry ice in air-tight packages.	(10) Dry ice (carbon dioxide, solid), in quantities not exceeding 2.0 kg (4.4 pounds) per person in carryon baggage or 2.3 kg (5 pounds) per person in checked baggage, when used to refrigerate perishables. The packaging must permit the release of carbon dioxide gas. For checked baggage, the package must be marked "DRY ICE" or "CARBON DIOXIDE, SOLID" and must be marked with the net weight of dry ice or an indication the net weight is 2.3 kg (5 pounds) or less.
Self-inflating jacket with gas cartridges	☑ A life jacket containing two nonflammable gas cartridges, plus two spare cartridges.		(11) A self-inflating life jacket fitted with no more than two small gas cartridges (containing no hazardous material other than a Div. 2.2 gas) for inflation purposes plus no more than two spare cartridges. The lifejacket and spare cartridges may be carried in carry-on or checked baggage, with the approval of the aircraft operator.
Gas cylinders for mechanical limbs	✓ Nonflammable gas cylinders/cartridges in mechanical limbs, plus spare cylinders need for the trip.		(12) Small compressed gas cylinders of Division 2.2 (containing no hazardous material other than a Division 2.2 gas) worn by the passenger for the operation of mechanical limbs and, in carry-on and checked baggage, spare cylinders of a similar size for the same purpose in sufficient quantities to ensure an adequate supply for the duration of the journey.

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Mercury barometer or thermometer	Larger mercury thermometers and barometers carried by government weather personnel –in carry-on baggage only. Must be in leak-proof, mercury-proof packaging.		(13) A mercury barometer or thermometer carried as carryon baggage, by a representative of a government weather bureau or similar official agency, provided that individual advises the operator of the presence of the barometer or thermometer in his baggage. The barometer or thermometer must be packaged in a strong packaging having a sealed inner liner or bag of strong, leak proof and punctureresistant material impervious to mercury, which will prevent the escape of mercury from the package in any position.
Heat-producing equipment	☑ Diving lamps and other battery-operated extreme heat producing equipment – in carry-on baggage only. Power must be disconnected.		(14) Electrically powered heat producing articles (e.g., battery-operated equipment such as diving lamps and soldering equipment) as carry-on baggage only and with the approval of the operator of the aircraft. The heat producing component, or the energy source, must be removed to prevent unintentional functioning during transport.

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Wheelchairs and mobility devices with nonspillable batteries	Wheelchair or other battery powered mobility device equipped with a nonspillable battery when carried as checked baggage.  Nonspillable		(15) A wheelchair or other battery –powered mobility aid equipped with a nonspillable battery, when carried as checked baggage, provided—  (i) The battery meets the provisions of § 173.159(d) of this subchapter for nonspillable batteries; (ii) Visual inspection including removal of the battery, where necessary, reveals no obvious defects (removal of the battery from the housing should be performed by qualified airline personnel only); (iii) The battery is disconnected and terminals are insulated to prevent short circuits; and (iv) The battery is—  (A) Securely attached to the wheelchair or mobility aid,  (B) Is removed and placed in a strong, rigid packaging marked "NONSPILLABLE BATTERY" (unless fully enclosed in a rigid housing that is properly marked), or (C) Is handled in accordance with paragraph (a)(16)(iv) of this section.  Note: Many US airlines hold a special permit (exemption) allowing them to carry wheelchairs with nonspillable batteries without having to disconnect the battery.

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Wheelchairs and mobility devices with spillable batteries	Wheelchair or other battery powered mobility device equipped with a spillable battery when carried as checked baggage. Device must be stowed so the battery is upright or the battery must be disconnected and packaged separately.		(16) A wheelchair or other battery-powered mobility aid equipped with a spillable battery, when carried as checked baggage, provided—  (i) Visual inspection including removal of the battery, where necessary, reveals no obvious defects (however, removal of the battery from the housing should be performed by qualified airline personnel only);  (ii) The battery is disconnected and terminals are insulated to prevent short circuits;  (iii) The pilot-in-command is advised, either orally or in writing, prior to departure, as to the location of the battery aboard the aircraft; and  (iv) The wheelchair or mobility aid is loaded, stowed, secured and unloaded in an upright position, or the battery is removed, and carried in a strong, rigid packaging under the following conditions:  (A) The packaging must be leak-tight and impervious to battery fluid. An inner liner may be used to satisfy this requirement if there is absorbent material placed inside of the liner and the liner has a leakproof closure;  (B) The battery must be protected against short circuits, secured upright in the packaging, and be packaged with enough compatible absorbent material to completely absorb liquid contents in the event of rupture of the battery; and  (C) The packaging must be labeled with a CORROSIVE label, marked to indicate proper orientation, and marked with the words "Battery, wet, with wheelchair."

Passenger Hazmat Exception	Allowed	Not Allowed	Regulatory Text That Allows It 49 CFR 175.10(a)
Lithium and lithium-ion batteries	Small lithium and lithium- ion batteries in consumer electronic devices. Spare batteries must be protected from damage and short circuit and placed in carry- on baggage.	<ul> <li>☑ Spare lithium batteries in checked baggage.</li> <li>☑ Loose batteries not protected from short circuit.</li> </ul>	(17) Except as provided in § 173.21 of this subchapter, consumer electronic and medical devices (watches, calculators, cameras, cellular phones, lap-top computer, camcorders, etc.) containing lithium cells or batteries, and spare lithium batteries and cells for these devices, when carried by passengers or crew members for personal use. Each spare battery must be individually protected so as to prevent short circuits (by placement in original retail packaging or by otherwise insulating the terminals, e.g., by taping over exposed terminals or placing each battery in a separate plastic or protective pouch) and carried in carry-on baggage only. In addition, each installed or spare battery must not exceed the following:  (i) For a lithium metal battery, a lithium content of not more than 2 grams per battery; or  (ii) For a lithium-ion battery, an aggregate equivalent lithium content of not more than 8 grams per battery, except that up to two batteries with an aggregate equivalent lithium content of more than 8 grams but not more than 25 grams may be carried.

Though the Federal Aviation Administration (FAA) enforces these rules in air transportation, the US DOT Hazardous Materials Regulations (49 CFR, Parts 100-185) are written, issued, and officially interpreted by the US DOT Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Materials Safety (http://hazmat.dot.gov). For questions or comments regarding these hazardous materials regulations, please contact the Hazardous Materials Information Center at: 1-800-467-4922 or infocntr@dot.gov

The Transportation Security Administration (TSA) is responsible for the security screening of passengers and their baggage at U.S. airports. For questions about TSA "prohibited items" or other air travel security measures please go to: http://www.tsa.gov or contact the TSA Contact Center at: 1-866-289-9673 or TSA-ContactCenter@dhs.gov

tcurtis@airsafe.com Twitter: <u>@airsafe</u> Web Site: <a href="www.airsafe.com">www.airsafe.com</a> Facebook: facebook.com/airsafe 24 Roy St., #302 Seattle, 98109 408.905.6295

## Thank You for Using AirSafe.com

Thanks for being part of the AirSafe.com audience. Feel free to use these additional resources.

**Main Web site** – <u>www.airsafe.com</u> - The site features extensive information about airline safety and security, as well as other information of interest to the airline community.

**Latest News** – <u>AirSafeNews.com</u> – Features airline safety and security news, new podcast announcements, accident investigation updates, and other information from the AirSafe.com network of online resources.

**Airport Security** – <u>tsa.airsafe.org</u> – Before your next flight, visit AirSafe.com to review common airport security policies to find out what's allowed and what's not allowed on the aircraft.

**Fear of Flying Resources** – <u>fear.airsafe.org</u> – Basic background information about fear of flying and suggestions about how a passenger can deal with the fear.

**Podcast** – <u>podcast.airsafe.org</u> – The Conversation at AirSafe.com podcast highlights current airline safety and security issues of high interest. Available on iTunes and other major podcast providers.

**Plane Crash Videos** – <u>plane-crash-videos.net</u> – This is AirSafe.com's collection selected crash videos from around the world, including crashes from airlines, military units, and private aircraft.

Other Videos – <u>video.airsafe.org</u> – Featuring the videos from the Conversation at AirSafe.com podcast, this will take you directly to the AirSafe.com channel on YouTube, where you can review or comment on the most popular videos from the site.

**Airline Complaints** – <u>FlightsGoneBad.com</u> – Featured complaints from the AirSafe.com Airline Complaint System.

**Celebrity Plane Crashes** – <u>celebrity.airsafe.org</u> – This is AirSafe.com's collection selected crash videos from around the world, including crashes from airlines, military units, and private aircraft.

## Free Downloads

**Parenting and the Internet** – This is a practical how-to manual on managing online children. This free download also includes several additional resources for parents.

PDF version is available at: <a href="http://www.airsafe.com/downloads/pati.pdf">http://www.airsafe.com/downloads/pati.pdf</a>
Other ebook versions available at <a href="http://www.smashwords.com/books/view/12280">http://www.smashwords.com/books/view/12280</a>

**AirSafe.com Podcasting Production Manual** – Based on the production process sued to create the AirSafe.com's audio and video podcasts, this guidebook will show you how individuals, schools, and other groups can create and sustain a podcast series.

PDF version is available at: <a href="http://www.airsafe.com/classes/airsafe-podcasting-manual-draft.pdf">http://www.airsafe.com/classes/airsafe-podcasting-manual-draft.pdf</a>
Other ebook versions available at <a href="http://www.smashwords.com/books/view/12327">http://www.smashwords.com/books/view/12327</a>

## **Contribute to AirSafe.com**

If you have found one or more of the above resources useful to you, please consider contributing a donation to the 501(c0(3) nonprofit AirSafe.com Foudation. All money received will be used to offset the costs of publication for the web sites, blogs, podcasts, ebooks, and other educational resources on AirSafe.com's network. Please visit <a href="http://donate.airsafe.org">http://donate.airsafe.org</a> to donate.